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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Hsuan-Wen Wang

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EXAMINER

PARK, ILWOO

ART UNIT

PAPER NUMBER

2182

DATE MAILED: 10/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/622,806

Applicant(s)

WANG ET AL.

Examiner

Ilwoo Park

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9,10,14-22,28,32-36,38,43 and 44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9,10,14-22,28,32-36,38,43 and 44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claims 1-8, 11-13, 23-27, 29-31, 37, and 39-42 are canceled and claims 9, 28, 38, and 42 are amended. Claims 9, 10, 14-22, 28, 32-36, 38, 43, and 44 are presented for examination.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 9, 10, 14-22, 28, 35, 36, 38, 43, and 44 are rejected under 35

U.S.C. 102(e) as being anticipated by Dittia et al. [US 6,674,721 B1].

As for claim 9, Dittia et al teach a flow control hub, comprising:

a scoreboard memory device to maintain [e.g., col. 9, lines 38-40; col. 12, lines 48-49; col. 13, lines 61-65] flow control status for a plurality of flows, wherein each of the flows is identified [e.g., col. 12, lines 9-31] by an associated index in the scoreboard memory;

an address decoder to receive [e.g., col. 9; lines 38-40; col. 12, lines 32-35] a flow control message from a destination desiring to modify [col. 4, lines 20-27] flow of data

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thereto, and to determine [col. 12, lines 32-39; figs. 5C, 5D, 5E, 5F; col. 14, lines 42-46] an associated flow and scoreboard memory index for the flow control message; and

an updater to update [e.g., col. 9, lines 38-40; col. 13, lines 14-15] the flow control status for the associated flow in said scoreboard memory device based on the received flow control message; and

a message generator to generate [e.g., col. 12, lines 1-4; col. 12, lines 35-45] a flow control message for a particular flow based on the flow control status maintained in said scoreboard memory device for the particular flow.

4. As for claim 10, Dittia et al teach a selector to select the particular flow [col. 12, lines 1-4; col. 15, lines 55-61].

5. As for claim 14, Dittia et al teach a flow control hub, comprising:

a scoreboard memory device to maintain [e.g., col. 9, lines 38-40; col. 12, lines 48-49; col. 13, lines 61-65] flow control status for a plurality of flows, wherein each of the flows is identified [e.g., col. 12, lines 9-31] by an associated index in the scoreboard memory;

a selector to select [col. 12, lines 1-4; col. 15, lines 55-61] a next flow having a flow control status to process [e.g., col. 9, lines 26-28]; and

a message generator to generate [e.g., col. 12, lines 1-4; col. 12, lines 35-45] a flow control message for the selected flow based on the flow control status maintained in said scoreboard memory device for the selected flow.

6. As for claim 15, Dittia et al teach said message generator transmits the generated flow control message to a queue associated with the selected flow [col. 4, lines 51-59].

7. As for claim 16, Dittia et al teach said message generator invalidates the flow control status maintained in said scoreboard memory device subsequent to transmitting the generated flow control message [col. 15, lines 24-27].

8. As for claim 17, Dittia et al teach said message generator erases the flow control status maintained in said scoreboard memory device subsequent to transmitting the generated flow control message [col. 15, lines 24-27].

9. As for claim 18, Dittia et al teach an address decoder to receive [e.g., col. 9, lines 38-40; col. 12, lines 32-35] a flow control message from a destination desiring to modify [col. 4, lines 20-27] flow of data thereto, and to determine [col. 12, lines 32-39; figs. 5C, 5D, 5E, 5F; col. 14, lines 42-46] an associated flow and scoreboard memory index [e.g., col. 12, lines 9-31] for the flow control message; and an updater to update [e.g., col. 9, lines 38-40; col. 13, lines 14-15] the flow control status for the associated flow in said scoreboard memory device based on the received flow control message.

10. As for claim 19, Dittia et al teach a method, comprising:

maintaining [e.g., col. 9, lines 38-40; col. 12, lines 48-49; col. 13, lines 61-65] a flow control status for a plurality of flows in a memory device, wherein each of the flows is identified [e.g., col. 12, lines 9-31] by an associated index in the memory device;

selecting [col. 12, lines 1-4; col. 15, lines 55-61] a next flow having a flow control status to process [e.g., col. 9, lines 26-28]; and

generating [e.g., col. 12, lines 1-4; col. 12, lines 35-45] a flow control message for the selected flow based on the flow control status maintained in the memory device for the selected flow.

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11. As for claim 20, Dittia et al teach transmitting the generated flow control message to a queue associated with the selected flow [col. 4, lines 51-59].

12. As for claim 21, Dittia et al teach invalidating the flow control status maintained in the memory device for the selected flow [col. 15, lines 24-27].

13. As for claim 22, Dittia et al teach receiving a flow control message from a destination desiring to modify [col. 4, lines 20-27] flow of data thereto, determining [col. 12, lines 32-39; figs. 5C, 5D, 5E, 5F; col. 14, lines 42-46] an associated flow and memory device index for the flow control message; and updating [e.g., col. 9, lines 38-40; col. 13, lines 14-15] the flow control status for the associated flow in said scoreboard memory device based on the received flow control message.

14. As for claim 28, Dittia et al teach a method, comprising:

maintaining [e.g., col. 9, lines 38-40; col. 12, lines 48-49; col. 13, lines 61-65] a flow control status for a plurality of flows in a memory device, wherein each of the flows is identified [e.g., col. 12, lines 9-31] by an associated index in the memory device;

receiving [e.g., col. 9, lines 38-40; col. 12, lines 32-35] a flow control message from a destination desiring to modify [col. 4, lines 20-27] flow of data thereto;

determining [col. 12, lines 32-39; figs. 5C, 5D, 5E, 5F; col. 14, lines 42-46] an associated flow and memory device index for the flow control message; and

updating [e.g., col. 9, lines 38-40; col. 13, lines 14-15] the flow control status for the associated flow in said scoreboard memory device based on the received flow control message.

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generating [e.g., col. 12, lines 1-4; col. 12, lines 35-45] a flow control message for a particular flow based on the flow control status maintained in the memory device for the particular flow; and

selecting [col. 12, lines 1-4; col. 15, lines 55-61] the particular flow.

15. As for claim 35, Dittia et al teach a device comprising:

a plurality of ingress ports to receive data from external sources and to store the data in a plurality of ingress queues [e.g., incoming packet queues 295 in fig. 2C] associated with a plurality of flows, wherein the ingress queues are associated with flows, wherein the flows are associated with at least some subset of source, destination, and priority [see abstract];

a plurality of egress ports to receive data from at least a subset of the plurality of ingress queues and to store the data in a plurality of egress queues [e.g., outgoing packet queues 298 in fig. 2C] prior to transmission, and wherein the egress ports issue flow control messages to control flow of data to the egress ports based at least in part on capacity [col. 1, lines 19-23; col. 5, lines 33-35] of the egress queues; and

a flow control hub to receive [e.g., col. 9, lines 38-40; col. 12, lines 32-35; fig. 7C] flow control messages from the egress ports, to record [e.g., col. 9, lines 38-40; col. 12, lines 48-49; col. 13, lines 61-65] a flow control status for an associated flow in a scoreboard memory based on the received flow control message, to discard [col. 15, lines 24-27] the received flow control message subsequent to recording the flow control status, to select [col. 12, lines 1-4; col. 15, lines 55-61] next flow having a valid flow control status to process [e.g., col. 5, lines 14-20], to generate a flow control message for

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the next flow, and to forward [e.g., col. 12, lines 1-4; col. 12, lines 35-45] flow control message to ingress ports associated with the next flow.

16. As for claim 36, Dittia et al teach said flow control hub includes a comparator to compare [col. 16, lines 7-9] the received flow control message with the flow control status maintained in said scoreboard memory device and updates [e.g., col. 9, lines 38-40; col. 13, lines 14-15] the flow control status maintained in said scoreboard memory device based at least in part on the comparison.

17. As for claim 38, Dittia et al teach a flow control hub comprising:

a memory device to maintain [e.g., col. 9, lines 38-40; col. 12, lines 48-49; col. 13, lines 61-65] flow control status for a plurality of flows, wherein a flow defines at least a path from a particular ingress port to a particular egress port and wherein a flow control status for a particular flow defines whether the data is eligible for transmission [e.g., col. 4, lines 16-27; fig. 9A] for the particular flow; and

a queuing device to receive [e.g., col. 9, lines 38-40; col. 12, lines 32-35] flow control messages from at least one egress port, to update [e.g., col. 9, lines 38-40; col. 13, lines 14-15] the flow control status in the memory device for associated flow, and to discard [col. 15, lines 24-27] the flow control messages, wherein the flow control message may modify [col. 4, lines 20-27] the transmission eligibility of data to the egress port for one or more flows; and

a dequeuing device to select [col. 12, lines 1-4; col. 15, lines 55-61] a next flow having a flow control status to be processed, to generate [e.g., col. 12, lines 1-4; col. 12, lines 35-45] a flow control message based on the next flow control status, and to forward the generated flow control message to associated ingress ports.

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18. As for claim 43, Dittia et al teach a method comprising:

maintaining [e.g., col. 9, lines 38-40; col. 12, lines 48-49; col. 13, lines 61-65] a flow control status for a plurality of flows in a memory device, wherein a flow defines at least a path from a particular ingress port to a particular egress port and wherein a flow control status for a particular flow defines whether the data is eligible [e.g., col. 4, lines 16-27; fig. 9A] for transmission for the particular flow;

receiving [e.g., col. 9, lines 38-40; col. 12, lines 32-35] a flow control messages from at least one egress port, wherein the flow control message may modify [col. 4, lines 20-27] the transmission eligibility of data to the egress port for one or more flows;

updating [e.g., col. 9, lines 38-40; col. 13, lines 14-15] the flow control status in the memory device for associated flows based on the received flow control messages; and

discarding [col. 15, lines 24-27] the flow control messages after the memory is updated;

selecting a next flow having a flow control status to be processed;

generating [e.g., col. 12, lines 1-4; col. 12, lines 35-45] a flow control message based on the next flow control status; and

forwarding [e.g., col. 12, lines 1-4; col. 12, lines 35-45] the generated flow control message to associated ingress ports.

19. As for claim 44, Dittia et al teach invalidating a particular flow subsequent to the particular flow having a flow control message generated and [col. 15, lines 24-27].

Claim Rejections - 35 USC § 103

20. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

21. Claims 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dittia et al. [US 6,674,721 B1] in view of well known in the art.

As for claim 32, Dittia et al teach a store and forward device [fig. 4] comprising:

a plurality of ingress ports to receive data from external sources and transmit the data based on flow of the data, wherein each ingress port has a plurality of ingress queues [e.g., incoming packet queues 295 in fig. 2C] associated with a plurality of flows, and wherein transmission of data from a particular queue is controlled at least in part by a control status associated with the queue; and

a plurality of egress ports to receive data from at least a subset of the plurality of flows, wherein each egress port has an egress queue [e.g., outgoing packet queues 298 in fig. 2C] for holding a data prior to transmission, and wherein each egress queue issues flow control messages based at least in part on capacity [col. 1, lines 19-23; col. 5, lines 33-35] of the egress queue; and

a flow control hub to receive [e.g., col. 9, lines 38-40; col. 12, lines 32-35; fig. 7C] flow control messages from the egress ports, maintain [e.g., col. 9, lines 38-40; col. 12, lines 48-49; col. 13, lines 61-65] a flow control status for each flow based on the received flow control messages, select [col. 8, lines 64-65] a next flow having a flow control status

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to process [e.g., col. 5, lines 14-20], and generate and forward [e.g., col. 12, lines 1-4; col. 12, lines 35-45] flow control message to queue associated with the selected flow.

However, Dittia et al do not explicitly disclose a plurality of Ethernet cards including those ingress/egress ports and the flow control hub are connected in a backplane. It is well know in the art that a plurality of Ethernet cards including those ingress/egress ports and the flow control hub are connected in a backplane. At the time of the invention, one of ordinary skill in the art would have been obvious to motivate to combine the cited disclosures in order to obtain a feasibility of packaging and connecting of those ports and hub in the device.

22. As for claim 33, Dittia et al teach each of flow is identified by an associated index in the memory device [e.g., col. 12, lines 9-31].

23. As for claim 34, Dittia et al teach an address decoder to receive a flow control message from the egress queues and to determine [col. 12, lines 32-39; figs. 5C, 5D, 5E, 5F; col. 14, lines 42-46] an associated flow and memory device index; an updater to update [e.g., col. 9, lines 38-40; col. 13, lines 14-15] the flow control status for the associated flow in the memory device based on the received flow control message; a selector to select [col. 8, lines 64-65] a next flow having a flow control status to process; and a message generator to generate [e.g., col. 12, lines 1-4; col. 12, lines 35-45] a flow control message for the selected flow based on the flow control status maintained in the memory device for the selected flow; and transmit the generated flow control message to an ingress port associated with the selected flow.

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Conclusion

24. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ilwoo Park whose telephone number is (571) 272-4155. The examiner can normally be reached on Monday through Friday from 9:00 AM to 5:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Huynh can be reached on (571) 272-4147. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ILWOO PARK
PRIMARY EXAMINER


Ilwoo Park

October 18, 2006